



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,219	02/22/2002	Dennis A. Corrigan	OBC-104	1673

7590

07/31/2002

Philip H. Schlazer  
Energy Conversion Devices, Inc.  
2956 Waterview Drive  
Rochester Hills, MI 48309

EXAMINER

TSANG FOSTER, SUSY N

ART UNIT

PAPER NUMBER

1745

5

DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/081,219

Applicant(s)

CORRIGAN ET AL.

Examiner

Susy N Tsang-Foster

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26, 31, 32, 34-40, 45 and 46 is/are rejected.
- 7) ☒ Claim(s) 27-30, 33 and 41-44 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 5/17/2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

10F mentioned on page 10 of the specification is not shown in Figure 1B.

Reference label 20 mentioned on page 12, line 18 of the specification is not shown in Figure 3A.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "10E" has been used to designate both a fold on one side and another fold on the opposite side in Figure 1B. A proposed drawing correction or corrected drawings are

Art Unit: 1745

required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description:

Reference label 20 A shown in Figure 3A is not in the specification.

Reference label 30 B shown in Figure 9 B is not in the specification.

A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 4, the limitation “said electrolyte comprises an alkaline material.”

6. The abstract of the disclosure is objected to because it mentions that an electrode stack is arranged in a zigzag configuration and that additional electrode may be inserted within the folds of the zigzag configuration; however, none of the figures show this embodiment. Instead, an electrode is arranged in a zigzag configuration and additional electrodes are inserted within the

Art Unit: 1745

folds of the zigzag configuration as shown in Figure 2. Correction is required. See MPEP § 608.01(b).

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 4, 5, 8, and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, the limitation "said electrolyte comprises an alkaline material" is indefinite because it is unclear what this alkaline material is and the specification does not define the term "alkaline material". For the purposes of prosecution of the instant claim, the limitation is interpreted as "said electrolyte is an alkaline electrolyte."

Claim 5 recites the limitation "said alkaline material" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. For the purposes of prosecution of the instant claim, claim 5 is interpreted as being dependent from claim 4.

Claim 8 recites the limitation "said at least one positive electrode" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the limitation "said at least one negative electrode" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

*Claim Rejections - 35 USC § 102*

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in–

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

10. Claims 1, 6, 7, 13-15, 21, 38-40, 45, and 46 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Xie et al. (US 6,287,721 B1).

See Figures 2 and 5; col. 3, lines 50-63; col. 4, lines 37-41 and col. 6, lines 3-10 of the Xie et al. reference.

11. Claims 1-11, 13-19, 22, 23, and 34-37 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kawakami (US 5,582,931).

See Figures 1A, 2A, 2B, 3, 11A and 11B; col. 1, lines 49-60; col. 3, lines 10-65; col. 6, lines 50-67; and col. 7, lines 40-45 of the reference.

12. Claims 1 and 13-15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Post et al. (US 5,147,737).

See Figure 2 and col. 3, lines 49-66 of the reference.

Art Unit: 1745

13. Claims 1, 7, and 13-15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Gozdz et al. (US 5,460,904).

See Figure 6 and col. 11, lines 1-35 of the reference.

14. Claims 1, 7, 12, 13-15, 20, 24-26, 31, and 32 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Shackle (US 5,300,373).

See Figures 1-13B; col. 3, line 10 to col. 7, line 35 of the reference.

***Allowable Subject Matter***

15. Claims 27-30, 33, and 41-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject matter:

The present invention claims an electrochemical cell comprising:  
an electrode folded in a zigzag configuration having folds and creases and at least one bifold counter-electrode having a first leg and a second leg, the first leg and the second leg disposed within a first and a second fold on the same side of the zigzag configuration of the electrode and one of the following distinguishing features: a) one of the electrodes comprises nickel hydroxide (applies to claims 27 and 29), b) one of electrodes comprises hydrogen storage alloy (applies to claims 28 and 30) and c) at least one bifold counter-electrode is a plurality of bifold counter-electrodes, each of the bifold counter-electrodes having a first leg and a second leg and a plurality of bifold electrodes disposed over alternating creases on each side of the zigzag configuration of the electrode (applies to claim 33).

The present invention also claims an electrochemical cell comprising: an electrode stack including an electrode disposed between a first and a second counter-electrode, the electrode stack folded in a zigzag configuration with folds and creases and one of the following distinguish features: a) either the electrode or counter electrode comprises nickel hydroxide (applies to claims 41 and 43), and (b) either the electrode or counter electrode comprises a hydrogen storage alloy material (applies to claims 42 and 44).

The closest prior art of record, Shackle (US 5,300,373) discloses an electrochemical cell comprising an electrode folded in a zigzag configuration having folds and creases; and at least one bifold counter-electrode having a first leg and a second leg, the first leg and the second leg disposed within a first and a second fold on the same side of the zigzag configuration of the electrode (Figures 1-13B; col. 3, line 10 to col. 7, line 35) but does not disclose, teach, or suggest that the electrode or counter electrode is either nickel hydroxide or a hydrogen storage alloy material (applies to claim 27-30) or that a plurality of bifold electrodes disposed over alternating creases on each side of the zigzag configuration of the electrode (applies to claim 33).

The closest prior art of record, Xie et al. (US 6,287,721 B1) discloses an electrochemical cell comprising: an electrode stack including an electrode disposed between a first and a second counter-electrode, the electrode stack folded in a zigzag configuration with folds and creases (Figures 2 and 5; col. 3, lines 50-63; col. 4, lines 37-41 and col. 6, lines 3-10) but does not



Art Unit: 1745

disclose, teach, or suggest that the electrode or counter electrode comprises nickel hydroxide or a hydrogen storage alloy material (applies to claims 41-44).

***Conclusion***

17. Any inquiry concerning this communication or earlier communications should be directed to examiner Susy Tsang-Foster, Ph.D. whose telephone number is (703) 305-0588. The examiner can normally be reached on Monday through Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at (703) 308-2383. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900.

The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9310 for regular communications and (703) 872-9311 for After-Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

st/28 July 2002

*Susy Tsang-Foster*